THE GENUS BRACHYTREMELLA TRÄGÅRDH, 1946, WITH DESCRIPTIONS OF THREE NEW SPECIES
(ACARINA: DIARTHROPHALLIDAE)[1]

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Trägårdh (1946) erected *Brachytremella* for a single female, *B. spinosa* Trägårdh, collected from a passalid beetle, *Protomocerus* sp., from New Guinea. Womersley (1961) redescribed the female and described the male and tritonymph from passalids collected in New Guinea. At the same time Womersley described two additional species—*trägårdhi* from Australia and *bornemisszai* from Australia and New South Wales—and gave a key to the three species. In this paper we are describing three new species taken from a small collection of alcohol preserved passalid beetles from Costa Rica and bringing to six the number of species in the genus.

Brachytremella Trägårdh, 1946

Trägårdh, I. 1946. Ent. Medd. 24:386. New genus by designation.
Womersley, H. 1961: Trans. Roy. Soc. S. Aust. 84:11.

Adults of this genus may be recognized by the following characters: body oval in shape and bearing 6 pairs of long, heavy, barbed, capitate dorsal setae; metopodal plates absent or fused with ventral plate; genital plate of the female not separated posteriorly by a suture from the ventral plate; legs II of the male not modified. The protonymph has 5 pairs of dorsal setae of the same type as in the adult, whereas the deutonymph has 6 pairs of setae of this type.

Brachytremella joanae, n. sp.
(Fig. 1A–F)

Known only from the female and deutonymph and may be recognized by the following characters: 2nd and 4th pairs of dorsal setae shorter than other dorsal setae, dorsum of femora III and IV bearing 2 heavy, spined setae; female ventral plate not enlarged behind coxae IV; in the deutonymph only sternal setae IV are on the ventral plate.

FEMALE. Idiosoma 480μ long, 370μ wide. (Measurements are the average of 2 specimens.) Shape rounded oval. *Dorsum* (fig. 1A). Dorsal plate entire, not extending to posterior and posterolateral margins of body; plate with a number of pores located in the general arrangement of the setal pattern of mesostigmata. Six pairs of spined, heavy, tapering setae, all ending in a small but distinct knob; 4 pairs arising from dorsal plate, pairs 5 and 6 arising from integument; anterior (1st) pair 320μ long, 2nd 210μ, 4th pair slightly longer

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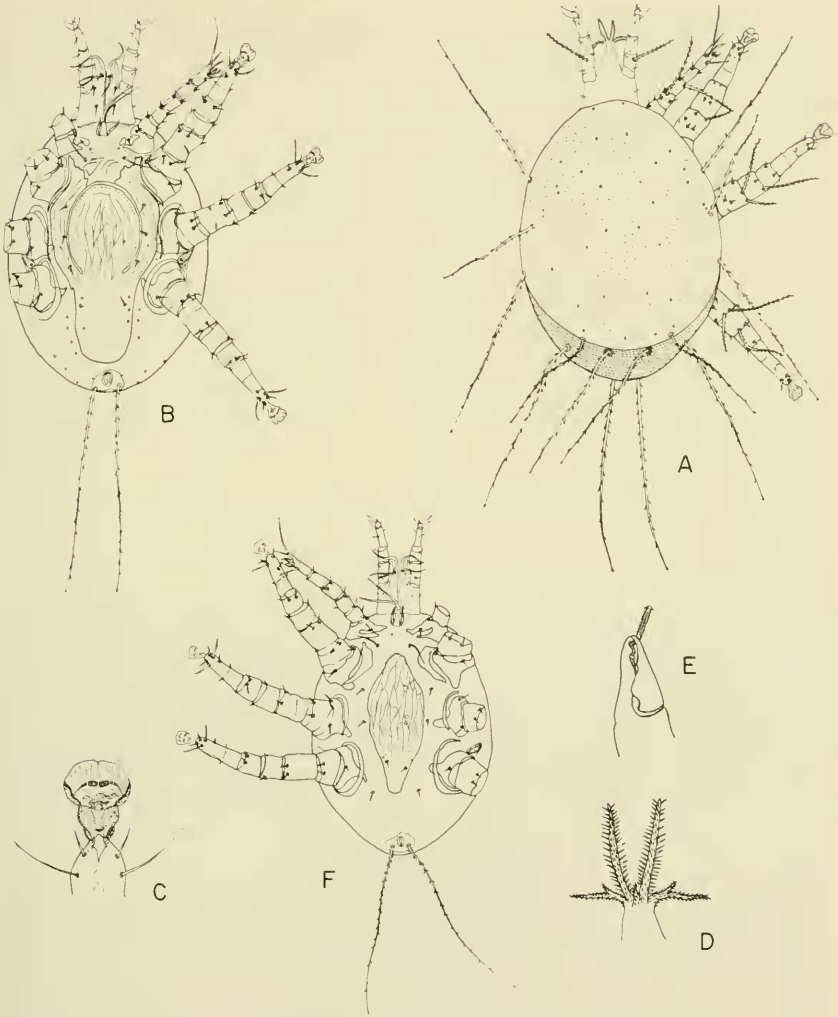

Fig. 1. *Brachytremella joanae*, n. sp. Female: A, dorsum; B. venter; C, caruncle II, ventral view; D, tectum; E. chelicera. Deutonymph: F, venter.

than 2nd; median pair of setae arising from integument 290μ long, lateral pair from integument 365μ long. *Venter* (fig. 1B). Sternal, metasternal and ventral plates coalesced, extending posterior of coxae IV, not widening behind coxae IV; combined plate 400μ long, 215μ between coxae III, 130μ between coxae IV and 115μ near the rounded posterior end of the plate; sternal area only semisclerotized medially, sclerotized at lateral margins; reticulations on sclerotized area of sternal, metasternal and genital plates; ventral area of plate not distinctly reticulated; 5 pairs of ventral setae; sternal setae I arising from

Table 1. Deutonymph-adult leg chaetotaxy formulae of *Brachytremella*. Total number of setae only given for the tarsi. Deviations of *B. crossi* given in footnotes.

Leg	Coxa	Trochanter	Femur	Genu	Tibia	Tarsus
I	$0\frac{0}{2}0$	$1\frac{1}{0}1$	$1\frac{21}{11}1$	$1\frac{11}{00}1$	$1\frac{01}{11}1$	7 setae[c]
II	$0\frac{0}{2}0$	$1\frac{0}{2}1$	$1\frac{22}{11}1$	$1\frac{11}{00}1$	$1\frac{01}{11}1$	13 setae
III	$0\frac{0}{2}0$	$1\frac{1}{2}0$	$1\frac{22}{11}1$[b]	$1\frac{11}{00}1$	$1\frac{01}{11}1$	13 setae
IV	$0\frac{0}{1}0$	$1\frac{2}{2}0$[a]	$1\frac{22}{11}1$[b]	$1\frac{11}{00}1$	$1\frac{01}{11}1$	13 setae

[a] *B. crossi*: $1\frac{1}{2}0$

[b] *B. crossi*: $1\frac{21}{11}1$

[c] *B. crossi*: 6 setae

semisclerotized area of sternum, approximately 3 times length of other ventral setae; 5th pair of setae located at posterior level of coxae IV; positions of other setae and relative length of setae as shown; pores in plate and integument as shown. Genital plate elongate-rounded, 178μ long, 143μ wide, fused posteriorly to ventral plate; thickened along free margins. Endopodal plates II fused to sternal plate anteriorly, free along posterior half; III free, curving around anterior of coxa III; IV encircling coxa IV, widening slightly posterior of coxa. Anal plate wider than long, bearing 2 spined, tapering, apically knobbed setae up to 395μ long. Peritremal plate surrounding peritreme, enlarging lateral of stigmata and bearing a pore; peritreme length 3–4 times width of stigmata. Metopodal plates absent. Tritosternum of type illustrated in fig. 2D; one pair of fleshy, ciliated setae flanking base. *Legs*. Coxa I fragmented, medial setae arising from integument. Chaetotaxy, following Evans (1963), given in table 1. All setae simple except the subterminal clawlike structure on tarsus I and spined, heavy setae on the following: 1 seta on genua I, III and IV; 1 on femora I and II; 2 on femora III and IV, the posterior seta on each segment shortest. Tarsus I with 2 terminal setae and a subterminal clawlike structure; tarsi II–IV with well developed padlike caruncles (fig. 1C) bearing a pair of thickened structures medially giving the appearance of claws (these structures are on the ventral surface of the caruncle and each consists of a thickened central part which bears a series of individual, thickened striae running parallel to the long axis of the caruncle and extending to the margin of the caruncle, median striae heavier and longer than lateral ones; proximal of this structure is a smaller but similar shaped line of thickened striae; these structures undoubtedly aid the mite in clinging to the sclerotized body of the host); caruncle thickened proximally and along lateral margins. Lengths of legs, including coxa and caruncle: I, 227μ; II, 355μ; III, 370μ; IV, 380μ. *Gnathosoma*.

Ventrally as in following species (see fig. 3D). Tectum (fig. 1D) consisting of 4 terminal parts, median pair thickest and rakelike in appearance; outer parts ciliated, shorter than median and each bearing a short fingerlike ciliated structure; dorsally a small ciliated pointed structure projects between base of median extensions. Gnathosoma bearing a pair of short, simple setae dorsolaterally midway between idiosoma and palpal trochanter. Chelicerae strongly chelate; excrescence trough-shaped, toothed along both margins, arising from fixed digit (fig. 1E). Palps normal for genus; number of setae per segment as follows: tarsus 6, tibia 7, genu 4, femur 4, and trochanter 1; relative lengths of setae as shown.

DEUTONYMPH. Shape as in female. Idiosoma 480μ long, 370μ wide. *Dorsum*. General features as in female, setae approximately same lengths as in female. *Venter* (fig. 1F). Ventral plate 260μ long, 115μ at widest part; bearing 1 pair of setae; 1 pair pores between coxae II and 1 pair at margin of plate between coxae IV; striations distinct, general pattern as shown; 4 pairs of setae arising from integument, positions and relative lengths as shown. Endopodal plates II, III and IV present, shapes and positions as illustrated. Anal plate diamond shaped; setae 375μ long, of same type as dorsal setae. Peritreme and plate, and tritosternum as in female. Legs and gnathosoma with general features as in female.

Male, protonymph and larva unknown.

Described from 2 females and 2 deutonymphs. Collection data for holotype (female): Costa Rica, Cartago Province; 13-VII-1965; J. Baird, coll.; from alcohol vial containing passalus beetles *Passalus perparvulus* Kuw. and *Pseudacanthus tennis* Kuw. Female paratype and deutonymphs with same date. Holotype and one deutonymph deposited in U. S. National Museum, Washington, D. C., remaining specimens in collection of Department of Entomolgy, University of Georgia, Athens, Georgia.

Brachytremella crossi, n. sp.
(Figs. 2A–J; 4B)

This species is distinct in having the first pair of dorsal setae shorter than the second and in having only 1 heavy spined seta on the dorsum of femora and genua III and IV; adults with the sterni-geniti-ventral plate enlarged posterior to coxae IV and the posterior setae on this plate near the plate's posterior margin; male with a ventral spur on trochanters II and III.

FEMALE. Idiosoma oval, 530μ long, 343μ wide. (Measurements are the average of 3 specimens.) *Dorsum* (fig. 2A). Dorsal plate entire, not extending to posterior and posterolateral margins of body, shape similar to idiosoma. Dorsum with 6 pairs of heavy, spined setae which taper to a small but distinct knob at tip; first 4 pairs arising from margin of plate, last 2 pairs arising from integument behind dorsal plate; anterior pair shortest, up to 200μ long, 2nd pair 298μ long, median pair on integument 291μ long, relative lengths of others as shown. Numerous pores in plate in position of normal mesostigmata setal pattern. *Venter* (fig. 2B). Sternal, metasternal and ventral plates coalesced, 497μ long, 177μ wide between coxae III, constricting to 133μ between coxae IV and 167μ at widest point behind coxae IV; rounded posteriorly; medial area of anterior margin

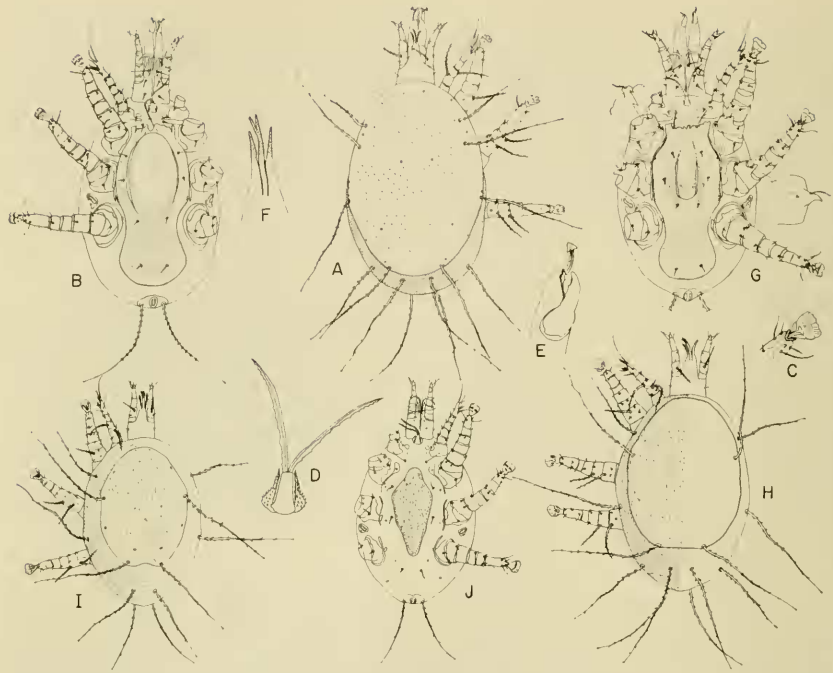

Fig. 2. *Brachytremella crossi*, n. sp. Female: A, dorsum; B, venter; D, tritosternum; E, chelicera; F, tectum. Male: C, venter of tarsus III; G, venter. Deutonymph: H, dorsum. Protonymph: I, dorsum; J, venter.

semisclerotized; 5 pairs of simple setae arising from plate, first pair 2–3 times length of other setae and arising from the semisclerotized area, last pair thickest and located well posterior to coxae IV, positions of other setae as illustrated; light reticulate markings prominent on posterior half of plate; pores on plate as illustrated. Genital plate elongate oval shape, fused to ventral plate; 187μ long, extending from middle of coxae IV to middle of coxae II; sternal plate thickened around genital opening. Anal plate transversely diamond shaped, bearing 2 setae up to 270μ long, of same type as dorsal setae. Endopodal plates II fused with sternal plate; III free, curving around anterior end of coxae III and extending posteromedial of coxa; IV free, encircling coxae IV. Metopodal plates absent. Peritreme short, length approximately 3 times width of stigmata; peritremal plate triangular shaped, surrounding peritreme, knoblike enlargment lateral of stigmata containing a small pore. Tritosternum with 2 flattened lacinae; lacinae membranous with small teeth on lateral margin, slightly thickened medially (fig. 2D); a pair of ciliated setae flanking base. *Legs.* Chaetotaxy given in table I. Leg I 183μ long; with 2 terminal setae, anterior seta as long as combined length of tarsus and tibia, posterior seta half that long; subterminal clawlike group of setae arising from posterior dorsal margin of tarsus (see fig. 3B); femur I and genu I each with a spined, heavy dorsal seta, other setae simple. Coxa I fragmented, medial seta arising from integument. Tarsi II–IV with a pair of

long slender ventral setae; large pad like membranous caruncle with thickened area resembling claws on ventral surface. Femora II, III and IV and genua III and IV each with a heavy spined seta dorsally. Lengths, including coxa and caruncle, of legs II–IV: II, 277μ; III, 273μ; IV, 275μ. *Gnathosoma.* Tectum consisting of 2 lateral anterior extensions and a median extension which is split at the tip for about ⅓ its length, all extensions ciliated (fig. 2F). Palpal setae simple except for heavy, spined seta arising from dorsum of femur; remaining setae short except for 2 longer setae on tibia and 1 on tarsus; relative positions as shown in fig. 3D. Deutosternal groove without teeth; 3 pair of ventral setae, anterior hypostomal setae twice length of posterior pair; capitular setae about as long as posterior hypostomal setae; hypostomal process (internal malae) long, feathered, curving anterior to the long sclerotized corniculi. Chelicerae chelate, fixed digit bearing a trough-shaped excrescence which is smooth on the lateral margins and arrowhead-shaped at tip (fig. 2E). A short simple seta on each dorsolateral margin of gnathosoma about midway between idiosoma and palpal trochanter.

MALE. Shape as in female, idiosoma 493μ long, 317μ wide. (Measurements are the average of 3 specimens.) *Dorsum.* Plate entire, surrounded posteriorly and posterolaterally by integument as in female; furnished with 6 pairs of spined, tapering, capitate setae of type and arrangement as in female, anterior pair 187μ long, second pair 280μ long, median pair on integument 273μ long. *Venter* (fig. 2G). Sternal, metasternal and ventral plates coalesced, 353μ long, 153μ wide between coxae III, 92μ between coxae IV, 167μ at greatest width behind coxae IV; posterior margin of plate rounded, anterior margin irregular in outline, semisclerotized medially; plate lightly reticulated; 1 pair of pores at margin of plate at posterior level of coxae II; bearing 4 pairs of setae, anterior pair longest, relative lengths and positions as illustrated. Genital plate 148μ long; transverse suture near posterior margin; internal kidney-shaped genital structure at each posterolateral margin of genital plate. Endopodal plates II, III and IV present and as in female. Anal plate wider than long, slightly bilobed from weak constriction medially; furnished with 2 setae of type occurring on dorsal plate; seta 257μ long. Peritreme, peritremal plate and tritosternum as in female. *Legs.* Chaetotaxy as given in table 1. Leg I, 177μ long. Leg II thickest, 282μ long; with a bilobed setigerous spur on venter of trochanter (fig. 2G). Leg III 273μ long bearing prominent slightly curved spur on ventrum of trochanter with ventral seta of trochanter arising from the lateral margin of this spur (fig. 2G). Leg IV 290μ long. Except for spurs on trochanter II and III chaetotaxy as in female. Tarsi II–IV without claws; well developed padlike caruncle with basal part thickened, terminal part membranous; a pair of sclerotized clawlike structures at terminal end of tarsi (fig. 2C). Gnathosoma with general facies as in female. Movable digit of chelicera with excrescences as in female.

DEUTONYMPH. Shape as in female; idiosoma 433μ long, 291μ wide. (Measurements are the average of 4 specimens.) *Dorsum* (fig. 2H). Plate entire, surrounded by integument; truncate posteriorly, otherwise with general shape of idiosoma. Dorsum bearing 6 pairs of spined, tapering, capitate setae, 2 pairs arising from dorsal plate, 4 pairs from integument; anterior pair of setae 159μ long, second pair 260μ long, relative lengths of remaining setae as shown. *Venter* (fig. 4B). Ventral plate 253μ long, 112μ at greatest width, shape as

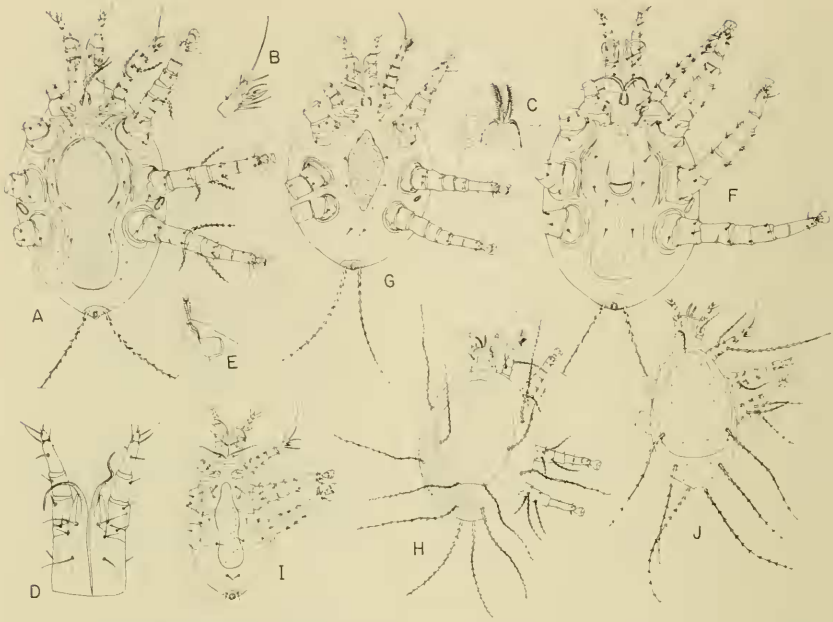

Fig. 3. *Brachytremella cartwrighti*, n. sp. Female: A, venter; B. tarsus I, ventral view; C, tectum; D, ventral view of gnathosoma; E, chelicera. Male: F, venter. Protonymph: G, venter; H, dorsum. Larva: I, venter; J. dorsum.

figured; anterior margin thickened and without reticulate pattern of remainder of plate; 1 pair of pores at margin where thickened area begins, a pair of porelike structures in plate behind coxae III; 5 pairs of ventral setae, fourth pair arising from ventral plate, remaining setae on integument, relative lengths as illustrated. Endopodal plates II, III and IV present; II widened anteriorly and bearing a pore, III rodlike, IV curving posteriorly around coxae IV. Integument bearing 5 pairs of pores, largest pair located medial of fragmented coxae I, position of others as shown. Anal setae 213μ long; anal plate as illustrated. Tritosternum, peritreme and peritremal plate as in female. *Legs*. Chaetotaxy (see table 1) and caruncle as in female. *Gnathosoma*. General features as in female; chelicera with excrescence on fixed digit.

PROTONYMPH. Idiosoma 400μ long, 280μ wide (based on two specimens). *Dorsum* (fig. 2I). Plate truncate posteriorly; not extending to margins of body. Bearing 5 pairs of spined, tapering, capitate setae; second and fourth pairs of setae on plate; first pair 140μ long, second 250μ long, relative lengths of other setae as shown. *Venter* (fig. 2J). Ventral plate without setae; shape as shown, 230μ long, 100μ at greatest width; margins thickened and without reticulations which cover remainder of plate; one pair of pores at margin medial of coxae II. Integument bearing 5 pairs of pores and 4 pairs of setae, anterior pair of setae longest, posterior pair longer than second or third pairs. Endopodal plates as in deutonymph. Anal setae same type as on dorsum, 160μ long; shape of anal

plate as illustrated. Tritosternum as in adults. Peritreme shorter than in adults, plate more oval, bearing 1 pore posterolateral of stigmata. *Legs.* Chaetotaxy discussed below. Pretarsi II–IV with caruncle as in female; genua and femora I, III and IV and femur II each with a single heavy, spined seta dorsally. *Gnathosoma.* General features as in adult. Palpal tibia without setae, genu with 1 dorsal setae (one less on each of these segments than in adults), ventrally no seta on trochanter, remaining segments as in deutonymph.

Described from 3 females, 3 males, 4 deutonymphs and 3 protonymphs. Holotype (female) data: Costa Rica, Heredia Province; 8-II-1965; J. Baird, coll.; from alcohol vial containing passalid beetles *Passalus perparvulus* Kuw. and *Pseudacanthus tennis* Kuw. One female, 1 male, 4 deutonymphs, and 2 protonymph with same data as holotype. One female and 1 male from Turrialha, Costa Rica; March, 1965; M. V. Truitt, coll.; from passalid (*Passalus*) beetle. One deutonymph from Cerro Meurte, Costa Rica; 5-II-1965; M. V. Truitt, coll.; from passalid (*Passalus*) beetle. The male and female from Turrialha had longer dorsal setae and differed in other minor characters from Heredia Province specimens, but major taxonomic characters were as in the Heredia Province material. Holotype, male paratype, 2 deutonymphs and protonymph deposited in U. S. National Museum, Washington, D. C., remaining paratypes in collection of Department of Entomology, University of Georgia, Athens, Georgia.

Brachytremella cartwrighti, n. sp.
(Figs. 3A–J; 4A, C, D)

This species is distinguished by having the second pair of dorsal setae shorter than other dorsal setae; in having 2 spined setae arising from femora III and IV; and in the adults the ventral plate widening slightly behind coxae IV with the last pair of setae on this plate located at the level of coxae IV.

FEMALE. Oval shape; idiosoma 590μ long, 400μ wide. (Measurements are the average of 2 specimens.) *Dorsum* (fig. 4C). Dorsal plate with a rounded extension between fourth pair of dorsal setae; surface of plate with faint polygonal reticulate patterns. Dorsal setae I–IV arising from margin of dorsal plate, the 2 remaining pairs arising from the integument posterior of the plate; second pair of setae shortest, 290μ long, first pair 400μ long, remaining setae approximately equal to first pair in length. *Venter* (fig. 3A). Sternal, metasternal and ventral plates coalesced, 430μ long, 218μ at widest part between coxae III, 133μ between coxae IV, 158μ behind coxae IV; anterior sternal area semisclerotized, sternal setae I arising from this area; 5 pairs of setae arising from the coalesced ventral plates, first pair longest, last pair next longest and remaining 3 pairs of equal length, positions of setae as shown; linear reticulations around genital opening, faint polygonal type pattern posteriorly; plate bearing 4 pairs of pores—1 pair between coxae II, a pair between coxae III and 2 pairs in the area of coxae IV.

Genital plate rounded, 188μ long, extending from level of anterior margin of coxae IV to middle of coxae II, thickened around free margins. Endopodal plate II fused to sternal plate for ¾ its length, posterior ¼ free; endopodal III

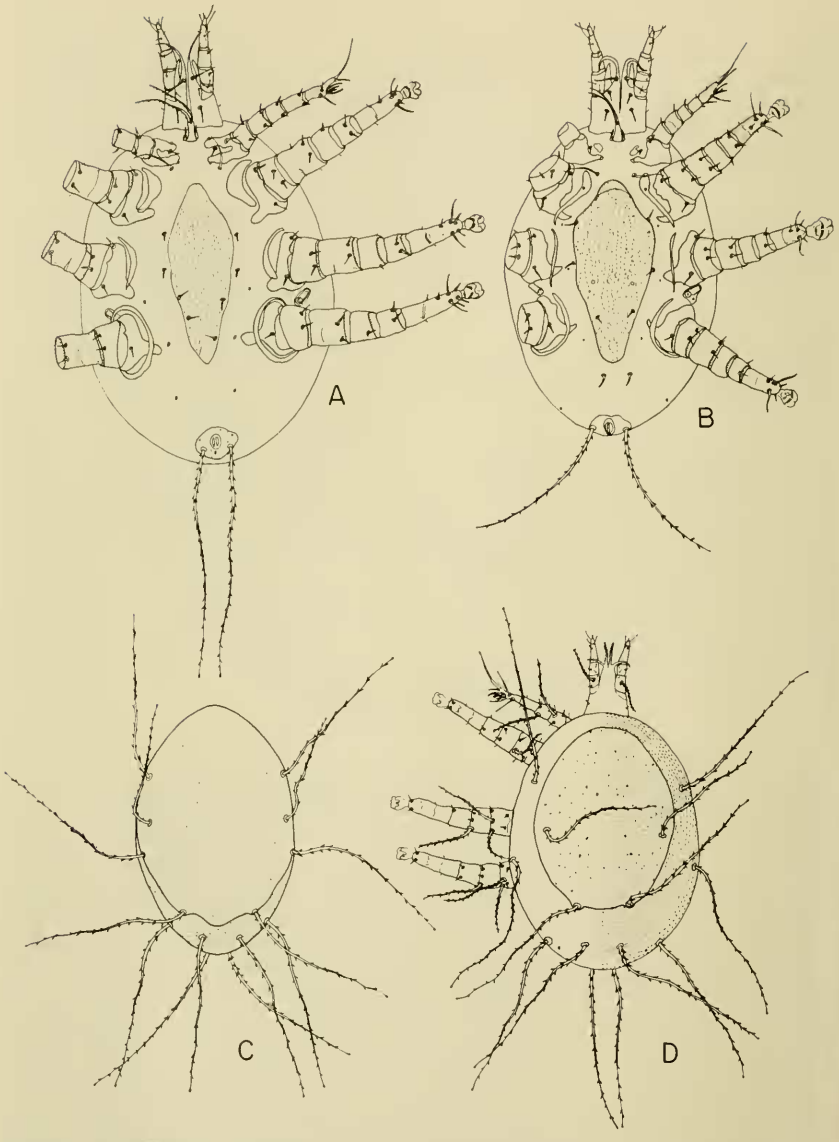

Fig. 4. *Brachytremella cartwrighti*, n. sp. Deutonymph: A, venter; C, dorsum. Female: D, dorsum. *Brachytremella crossi*, n. sp. Deutonymph: B, venter.

free, anteriorly curving around coxae III; endopodal IV free, encircling coxae IV. Peritreme short, stigmata lateral to and between coxae III and IV, peritremal plate same shape as peritreme and only slightly larger than peritreme. Tritosternum consisting of base flanked by a pair of ciliated setae and 2

lacinae. Anal plate diamond shaped, wider than long; bearing 2 setae, up to 410μ long, of type on dorsum. Integument behind coxae IV with 3 pairs of pores along margin of ventral plate. *Legs.* Chaetotaxy given in table 1. Leg I 240μ, coxa deeply concaved medially; subterminal clawlike structure on tarsus (fig. 3B); genu and femur each with a spined, heavy dorsal seta, other setae simple; tarsi II–IV each with large caruncle, ventrally bearing a thickened area resembling claws; leg II 350μ long bearing a heavy, spined dorsal seta on femur, other setae simple; leg III 375μ long, IV 385μ long; femora III and IV each with 2 heavy, spined setae dorsally, genua III and IV each with one such seta. Relative lengths of setae as shown. *Gnathosoma.* Tectum (fig. 3C) consisting of 4 terminal fingerlike structures, medial pair heaviest, directed straight forward, lateral filaments curving posteriorly. Palps typical for genus, femur with a heavy, spined seta dorsally. Hypostomal processes and gnathosomal setae as illustrated (fig. 3D). Chelicera strong, chelate, fixed digit bearing a trough-shaped excrescence which is toothed along each lateral margin (fig. 3E).

MALE. Shape oval, widest posteriorly. Idiosoma 595μ long, 412μ wide. (Measurements are average of 2 specimens.) *Dorsum.* Dorsal plate entire 510μ long, 412μ wide; dorsal setae of same type and position as in female. *Venter* (fig. 3F). Sternal, metasternal and ventral plates coalesced, total 400μ, 210μ between coxae III, 130μ between coxae IV and widening to 160μ behind coxae IV; area anterior of sternal setae I semisclerotized, a pair of large pores between semisclerotized area and coxae I, similar pores present in female. Genital plate 150μ long, consisting of two plates—a smaller posterior plate and an elongate anterior plate; a pair of sclerotized internal structures where the 2 plates join; reticulations not forming a distinct pattern. Anal plate as in female, setae up to 440μ long. Endopodal plate II free of sternal plate for posterior $\frac{2}{3}$ its length, anterior part fused to sternal plate; endopodal III not extending as far around anterior part of coxa III as in female; endopodal IV as in female. Peritreme and tritosternum as in female. *Legs.* Chaetotaxy as in female; tarsi II–IV with distinct clawlike sclerotized structure at terminal end of segment; caruncle without the thickened claw-resembling structure of female. Lengths: I, 260μ; II, 415μ; III, 435μ; and IV, 485μ long. *Gnathosoma* as in female.

DEUTONYMPH. Idiosoma shape as in female. *Dorsum* (fig. 4D). Single dorsal plate 365μ long, 250μ wide, completely surrounded by integument; pores on plate as shown; faint reticulation pattern. Six pairs of spined, heavy dorsal setae of type described for female, second and fourth pairs arising from dorsal plate, others from integument; first pair arising from integument 373μ long; 2 pores in integument behind plate. *Venter* (fig. 4A). Ventral plate 258μ long, 108μ at greatest width; shape as shown; linear reticulations on surface; 2 pairs of setae arising from surface of plate in the area of coxae IV; sternal setae I, II and III arising from integument; relative lengths and positions of setae as shown. Anal plate transverse diamond shape, 2 tapering, capitate setae of type on dorsum; setae up to 392μ long. Endopodal plates II widening medially, plates IV encircling coxae IV medially, plates III medial of coxae III. Peritreme and tritosternum as in female. *Legs.* Chaetotaxy as in female. Femora III and IV with 2 spined setae dorsally as in female; relative lengths of dorsal and ventral setae as shown. Lengths of legs as follows: I, 223μ; II, 333μ; III, 343μ; IV, 357μ.

PROTONYMPH. Idiosoma oval. *Dorsum* (fig. 3H). Plate entire, 320μ long,

250μ wide (average of 3 specimens), surrounded by integument. Five pairs of dorsal setae, of type described for female; first pair 310μ long, second pair 260μ long, posterior pair 320μ long; second and fourth pair arising from dorsal plate, others from integument. *Venter* (fig. 3G). Ventral plate elongate diamond shape, distinct reticulation pattern, pores at each lateral margin of plate between coxae II; 4 pairs of ventral setae, all arising from integument, relative lengths and positions as shown. Anal plate bearing 2 long setae of type on dorsum, setae up to 320μ long. Endopodal plate II triangular, bearing a pore; III and IV encircling their respective coxae. Peritreme length 2–3 times width of stigmata, surrounded by plate only slightly larger than peritreme. Tritosternum as in female. *Legs.* Heavy spined dorsal setae as in female, other setae simple; chaetotaxy discussed below. Ridged sclerotized structures on venter of caruncle resembling claws. Leg lengths as follows: I, 200μ; II, 290μ; III, 300μ; IV, 300μ. *Gnathosoma.* Venter and tectum as in female. A short simple seta on each dorsolateral margin midway between base of palps and base of gnathosoma. Chelicerae as in adults.

LARVA. Idiosoma oval, widest posteriorly. *Dorsum* (fig. 3J). Dorsal plate 280μ long, 180μ at greatest width, shape as shown; 2 pairs of spined, tapering, capitate setae, one pair arising from plate, second pair—up to 310μ long—arising from integument behind plate; 3 pairs of pores in integument—2 pairs behind plate, 1 pair near base of setae which arise from dorsal plate. *Venter* (fig. 3I). Ventral plate weakly sclerotized, surface bearing numerous small circular markings; plate constricted between coxae III, ventral setae arising from integument, first pair longest, relative lengths of others as shown. Endopodal plate II rectangular, bearing a pore at the posterolateral corner. Anal plate bearing 2 spined, capitate setae of type on dorsum, setae up to 330μ long. Tritosternum as in adults; peritremes absent. *Legs.* Coxa I fragmented, both setae of coxa I arising from nonsclerotized areas, pore associated with each coxal area. Leg I with a spined, heavy seta on dorsum of femur and genu, that of genu 275μ long; tarsus with subterminal clawlike setae as in female; other setae simple. Leg II with spined, heavy seta on dorsum of femur. Leg III with 2 spined setae on dorsum of genu, 1 on femur. Tarsi II and III without true claws, with sclerotized ridges in position of and giving appearance of claws. Lengths of legs as follows: I, 170μ; II, 270μ; III, 265μ long. *Gnathosoma.* Venter with 2 pairs of setae; corniculi extending anteriorly and laterally as in adults. Tectum as in adults. Palp with a spined, heavy seta on dorsum of femur, other setae simple; trochanter without setae. Without dorsolateral seta at margin midway between palpal base and posterior of gnathosoma.

Described from 2 female, 2 males, 1 deutonymph, 3 protonymphs and 1 larva. All specimens with same data as holotype. Holotype (female) data: Costa Rica, Heredia Province; 8-II-1965; J. Baird, coll.; from alcohol vial containing passalid beetles, *Pseudacanthus tennis* Kuw. Holotype, male paratype, 2 deutonymphs, protonymph and larva deposited in U. S. National Museum, Washington, D. C.; remaining specimens in Department of Entomology, University of Georgia, Athens, Georgia.

Leg Chaetotaxy. The leg chaetotaxy was the same in the deuto-

nymph, female and male. Following the system of Evans (1963), the chaetotaxy, including species variations, is given in table 1. Of interest is the absence of the posterior distal seta on the dorsum of femora III and IV in *B. crossi*. In the other two species two long, heavy, spined distal setae arise from the dorsum of this segment. *B. crossi* also has one less dorsal seta on trochanter IV compared to the other species. The study of additional species would provide information as to whether or not the number of setae on these segments in *crossi* represents the loss of a seta from the basic pattern.

B. crossi and *cartwrighti* each add the same setae, in number and position, to the protonymphal formula to provide the deutonymph-adult pattern given in table 1. The setae added are as follows: trochanter—IV adds one seta; femur—II and III add one ventral seta each, IV adds two ventral and one posterolateral setae; tarsi—II, III, and IV each add one median dorsal seta.

References

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A NEW NAME COMBINATION IN PODOTHRIPS HOOD, 1913

(Thysanoptera: Phlaeothripidae)

Kurosawa (1937, Kontyu 11 (3): 266–275, figs. 1–2, pl. 1), described *Haplothrips* (*Hindsiana*) *odonaspicola* from males and females found under bamboo sheaths in association with *Odonaspis secreta* (Cockerell), in Tokyo (type locality); Iwate; Gora, Hakone; Yokohama; and Yakeyama, Kanagawa, Japan. A pair of Tokyo paratypes in the U.S. National Museum closely resemble *Podothrips semiflavus* Hood (1913, Insecutor Inscitiae Menstruus 1 (6): 65–70, figs. 1–5), in morphology. In *semiflavus*, the type-species of *Podothrips*, the body and appendages are yellow except for the head, ends of the antennae, sides of the metathorax, small areas behind antecostas of abdominal terga III–VII, and abdomen beyond antecosta of VIII, which are brown. In *Podothrips odonaspicola* (Kurosawa), **n. comb.**, the fore femora, pro- and metathorax, and sides of abdomen VII are also brown, and brown portions of the bases and apices of the antennae are more extensive. The type-species was found in association with *Odonaspis* sp. and *Targionia sacchari* (Cockerell), under leaf sheaths of *Panicum barbinode* Trin., at Guanica, Puerto Rico.—Kellie O'Neill, *Systematic Entomology Laboratory, Entomology Research Division, ARS, U.S. Department of Agriculture, Washington, D.C. 20250.*